Lev Horodyskyj

http://www.horodyskyj.net | levh@sciencevoices.org | +1 814-205-3836

Curriculum Vitae
updated March 2025

Education

2003 - 2009 **PhD, Geosciences and Astrobiology**, *Geosciences, Pennsylvania State University*
Dissertation (link): "Soil Formation and Terrestrial Biosignatures in the Middle Cambrian"
Advisors: Drs. Lee Kump and Tim White

1999 - 2003 **BA, Earth and Planetary Sciences**, *Earth & Planetary Sciences, Johns Hopkins University*
Thesis: "Heterogeneous Chemistry and Titan's Aerosols"
Advisor: Dr. Darrell Strobel

Professional Experience

2019 - Now **Founder**, *Science Voices (US)*
- Co-developing Greenworks global environmental stewardship projects network
- Developing Agavi adaptive learning platform for digital teaching in offgrid regions
- Developing Sustainable States platform for environmental diplomacy role-playing games

2024 **Visiting Professor**, *Institute of Geoscience, University of Campinas (BR)*
- Teaching project design for community extension activities

2022 **Fulbright Scholar, Visiting Faculty**, *Institute of Geoscience, University of Campinas (BR)*
- Teaching astrobiology, environmental policy and diplomacy, fieldwork
- Developing concepts for off-grid digital classrooms in rain forest communities

2020 - 2021 **Visiting Assistant Professor**, *Dept. of Chem. and Phys. Sciences, Univ. of the Virgin Isl. (US)*
- Redeveloping online physics labs, teaching
- Developing public outreach resources and connections (Etelman Observatory)
- Liaison for Engineering 4 Us All (E4USA) program

2020 **Fulbright Scholar, Visiting Faculty**, *Fac. of Fisheries and Marine Science, Khairun Univ. (ID)*
- Teaching marine geology, developing new low-bandwidth lab concepts
- Faculty development for Indonesian colleagues

2019 **Residential Faculty**, *Phys. Sciences and Engr., Chandler-Gilbert Community College (US)*
- Teaching introductory astronomy lectures and labs
- Redeveloping astronomy labs

2011 - 2018 **Instructional Designer Sr.**, *Cntr. for Education Through eXploration, Arizona State Univ. (US)*
- Led development and research of *Habitable Worlds* online science lab course
- Co-developed Earth/political science *Build a Nation* course, hybrid and online versions
- Coordinated international teams for development of astrobiology digital simulators
- Developed grants and collaborations for place-based online geology experiences

Grants, Fellowships, and Awards

2022
- XPRIZE Foundation - Racial Equity Alliance Ideas Competition Award: “High-Tech Low-Tech Teaching and Learning” at Science Voices, Gilbert, Arizona, USA
- Office of Astronomy for Development Grant: “Beyond the Beach: Foundations for Caribbean Astrotourism” at Etelman Observatory, Charlotte Amalie, St. Thomas, US Virgin Islands, USA
- Fulbright Fellowship: "Deep and Widespread Transformation in Digital Interdisciplinary Science Teaching" at Universidade Estadual de Campinas, Campinas, Brazil
- US Department of State, Global Ties US Citizen Diplomacy Action Fund Grant: “Greenworks: Artistically Beautifying Trashed Channels in Eastern Indonesia” at Khairun University, Ternate, Indonesia

2021
- European Geosciences Union Higher Education Grant: “CubeSats for Earth Observation Experiences” at University of the Virgin Islands, Charlotte Amalie, St. Thomas, United States Virgin Islands, USA; Universidade Estadual de Campinas, Campinas, Brazil; Lviv Polytechnic, Lviv, Ukraine

- NASA EPSCoR Seed Grant: "A Caribbean CubeSat Student and Research Pipeline" at University of the Virgin Islands, Charlotte Amalie, St. Thomas, United States Virgin Islands, USA

2020
- Fulbright Fellowship: "Enhancing Geoscience Education Through Digital Technologies" at Universitas Khairun, Ternate, Indonesia

Peer-Reviewed Publications

2024
- Horodyskyj, L. B., Lennon, T., Greco, R. (2024) "*Sustainable States*: A Role-Playing Game for Sustainability Education." *Episodes* **47(4)**: 767-773 (link)

2021
- Mead, C., Anbar, A., **Horodyskyj, L. B.**, Bratton, D. (2021) "Education Through Exploration: A Model for Using Adaptive Learning to Teach Laboratory Science Online." In Impey, C. and Wenger, M. (Eds.) *Astronomy Education, Volume 2: Best Practices for Online Learning Environments*.

2019
- Pardos, Z. A. and **Horodyskyj, L. B.** (2019) "Analysis of Student Behavior in *Habitable Worlds* Using Continuous Representation Visualization." *Journal of Learning Analytics*, **6(1)**: 1-15 (link)

2018
- **Horodyskyj, L. B.**, Mead, C., Belinson, Z., Buxner, S., Semken, S., Anbar, A. D. (2018) "*Habitable Worlds:* Delivering on the Promises of Online Education." *Astrobiology,* **18(1):** 86-99 (link)
- Nawaz, S., Kennedy, G., Bailey, J., Mead, C., **Horodyskyj, L.** (2018) "Struggle Town? Developing profiles of student confusion in simulation-based learning environments." *Proceedings ASCILITE2018*, 224-233 (link)

2017
- Perera, V., Mead, C., Buxner, S., **Horodyskyj, L. B.**, Semken, S., Lopatto, D., Anbar, A. (2017) "Students in fully online programs report more positive attitudes toward science than students in traditional, in-person programs." *CBE–Life Sciences Education*, CBE – Life Sciences Education, 16(4): ar60 (link)

2016
- Domagal-Goldman, S. D., Wright, K. E., ..., **Horodyskyj, L. B.**, ..., Wong, T. (2016) "The Astrobiology Primer v2.0." *Astrobiology*, **16(8):** 561-653 (link)

2012
- **Horodyskyj, L. B.**, White, T. S., Kump, L. R. (2012) "Substantial biologically mediated phosphorus depletion from the surface of a Middle Cambrian paleosol." *Geology,* **40(6)**: 503-506 (link)

Smart Courses

2013
- **Horodyskyj, L. B.** and Anbar, A. D., *Habitable Worlds* (version 2.0). Editor: Anbar, A. D. Tempe, Arizona: ASU Online

2011
- **Horodyskyj, L. B.** and Anbar, A. D., *Habitable Worlds* (version 1.0). Editor: Anbar, A. D. Tempe, Arizona: ASU Online

Licenses

2015 - Now
- *Habitable Worlds* License and Distribution Agreement (Arizona State University's *Inspark Network*)

Affiliations

2020 - Now **Affiliate Research Scientist**, *Blue Marble Space Institute of Science (US)*

2019 - Now **Affiliate**, *Arizona State University (US)*

Teaching Experience

2021 - Now **Co-Instructor**, *Science Voices* (Online, Multi-Country)
- Greenworks (Teacher Development): Global (~20 teachers) – 1 offering (Late 2023)
- Sustainable States: Brazil-Ukraine (~40 students) – 1 offering (Late 2021)

2022 - 2024 **Visiting Professor**, *Universidade Estadual de Campinas* (Campinas, Brazil)

- GF 137: Fundamentos e Princípios da Extensão [Fundamentals and Principles of Extension] (~60 students) - 2 offerings (Early 2024)
- GF 305: Práticas de Geociências na Educação Básica [Geoscience Practices for Basic Education] (~40 students) - 2 offerings (Late 2022, Late 2023)
- GN 304: Trabalho de Campo [Fieldwork] (~100 students) - 2 offerings (Late 2022)
- Extension: Intro Astrobiology (~25 students) - 1 offering (Mid 2022)

2020 - 2021 **Visiting Assistant Professor**, *Univ. of the Virgin Islands* (Charlotte Amalie, St. Thomas, USA)

- PHY 211: Introduction to Physics I and Lab (~35 students) – 1 offering (Late 2020)
- PHY 212: Introduction to Physics II and Lab (~35 students) – 1 offering (Early 2021)
- PHY 497: Senior Seminar (~7 students) – 2 offerings (Late 2020, Early 2021)
- NSC 104: Astronomy (~15 students) – 1 offering (Mid 2021)

2020 **Visiting Professor**, *Universitas Khairun* (Ternate, North Maluku, Indonesia)

- Marine Geology (~50 students) – truncated due to COVID-19 (Early 2020)

2019 **Residential Faculty**, *Chandler-Gilbert Community College* (Chandler, Arizona, USA)

- AST 111: Introduction to Solar System Astronomy (~50 students) – 2 offerings (Late 2019)
- AST 112: Introduction to Solar System Astronomy Lab (~75 students) – 3 offerings (Late 2019)
- AST 114: Introduction to Stars, Galaxies, and Cosmology Lab (~20 students) – 1 offering (Late 2019)

2018 **Faculty Associate**, *Arizona State University* (Tempe, Arizona, USA)

2012 - 2014

- GLG/SES 106: Habitable Worlds (~2,000 students) – 4 offerings (Early 2012, Late 2013, Early 2014, Late 2018)

2010 **Adjunct Faculty**, *Glendale Community College* (Glendale, Arizona, USA)

- Geology 110: Geologic Disasters and the Environment (~20 students) – 1 offering (Late 2010)

Students Supervised

2021 - Now *University of the Virgin Islands* (Charlotte Amalie, St. Thomas, USA)

- **Lena Young**, PhD Program (2021 - Now)
- **Nikita Beck**, Emerging Caribbean Scientists Program, Undergrad Research (2021 - 2023)
- **Sheneka Patrick**, Emerging Caribbean Scientists Program (2021)

2021 - Now *Blue Marble Space Institute of Science* (Seattle, Washington, USA)

- **Sebastián Valle**, Young Scientist Program [online from Guatemala] (2024)
- **Deivy Castellano**, Young Scientist Program [online from Argentina] (2024)
- **Giane Mayumi**, Young Scientist Program [online from Brazil] (2023)
- **Miguel Luiz Puga**, Young Scientist Program [online from Brazil] (2023)
- **Leonardo Macedo**, Young Scientist Program [online from Brazil] (2023)
- **Yuqing Yang**, Young Scientist Program [online from China] (2023)
- **Fiorella Ojeda**, Young Scientist Program [online from Peru] (2022)
- **Suzana Varjão**, Young Scientist Program [online from Brazil] (2022)
- **Daniel Orta**, Young Scientist Program [online from USA] (2021)
- **David Orta**, Young Scientist Program [online from USA] (2021)
- **Shahkar Hassan**, Young Scientist Program [online from Pakistan] (2021)

Outreach and Service Experience

2024 **Guest**, *João Alves dos Santos Public School* (Campinas, Brazil)

- Developed activities on astrobiology for grade school children

2020 **Co-organizer**, *Ak-Chin Indian Community Library Mars Family Night* (Maricopa, Arizona)

- Co-developed and ran programming with library staff

2013 - 2019 **Panelist and Exhibitor**, *Phoenix Fan Fusion (formerly Phoenix Comicon)* (Phoenix, Arizona)

- Organized and participated in 2-3 panels each year on topics from science to gaming to public policy
- Organized and displayed ASU educational project exhibits

2014 - 2018 **Exhibitor**, *ASU School of Earth and Space Exploration* (Tempe, Arizona, USA)
- Organized and displayed ASU ETX educational projects, astrobiology activities during various public outreach events

2014 - 2015 **Science Programming Coordinator**, *Phoenix Comicon* (Phoenix, Arizona, USA)
Science programming for pop culture event that regularly attracts 75,000+ attendees
- Recruited 100+ local and regional scientists and science outreach enthusiasts
- Organized and scheduled 24+ hours of panels and exhibits each year
- Networked with local science and technology organizations and companies

2013, 2016, 2019 **Grand Awards Judge**, *Intel International Science and Engineering Fair* (Phoenix, Arizona)

2012, 2016 **Special Awards Judge**, *Arizona Science and Engineering Fair* (Phoenix, Arizona, USA)

International Experience

Fieldwork	Western Australia (2011, 2013 - Shark Bay, Karijini National Park)
Conferences and Workshops	International Astrobiology Education (2013 - Höör, Sweden), Sustainability Workshop (2017 - Jakarta, Indonesia), Earth-Life Science Institute Winter School (2018 - Tokyo, Japan), International Geoscience Education (2018 - Campinas, Brazil), 21st Century Geoscience Education Workshop (2020 - Lviv, Ukraine), International Geoscience Education (2022 - Matsue, Japan)
Ed-Tech Collaborations	Smart Sparrow (2011-2013 - Sydney, Australia)
Independent Travel	Europe (Spain, UK, France, Monaco, Italy, Switzerland, Liechtenstein, Austria, Germany, Denmark, Poland, Czech Republic, Slovakia, Hungary, Ukraine, Romania, Bulgaria, Greece); Asia (Turkey, Uzbekistan, Nepal, India, South Korea, Japan, Indonesia); Africa (Tunisia); Oceania (Australia); South America (Brazil, Colombia, Peru)

Technical Skills

Discussion Platforms	Piazza (Expert)
Learning Management	Canvas (Moderate), Blackboard (Moderate), Moodle (Moderate)
Content Management	Wordpress (Advanced)
Media Software	Affinity Designer (Expert), Adobe Creative Suite (Expert)
Web Languages	HTML (Expert), PHP (Expert), JavaScript (Expert)
Computer Languages	Python (Moderate), Java (Moderate), Fortran 90 (Moderate)
Databases	MySQL (Expert)
Languages	**Fluent:** English, Ukrainian **Conversational:** Brazilian Portuguese, Indonesian

Research Skills

Field Work	Outcrop measuring, description, sampling
Sample Preparation	Rock saw, ball mill grinding, acid digestions (HCl, HF), lithium metaborate fusions for oxide analysis, clean techniques for low carbon samples
Instrumentation	Elemental analyzer (CE Instruments NA 2500) use and maintenance, x-ray diffraction (Rigaku microdiffractometer); x-ray mapping (Horiba XGT-5000)
Pedagogy	Study design, data analysis

Memberships

2018 - Now	European Geosciences Union
2017 - Now	American Indian/Alaskan Native Working Group (NASA Science Mission Directorate)
2009 - Now	National Association of Geoscience Teachers
2008 - Now	American Geophysical Union
2006 - Now	Geological Society of America

Professional Development

2021 - 2022	Ashoka Changemakers Everywhere Academy (Online)
2018	Earth-Life Science Institute Origins Network Winter School (Tokyo Institute of Technology)
2017	Urban Heat Resilience Storytelling Workshop (Asian Cities Climate Change Resilience Network, Mercy Corps Indonesia, Thomson Reuters Foundation)
2017	Engaging Alaska Youth in STEM and Community Resilience Workshop (University of Alaska, Fairbanks/NOAA)
2010	Sagan Exoplanet Summer Workshop (CalTech)
2008	NASA Planetary Science Summer School, Session 2 (CalTech/Jet Propulsion Lab)

Panel and Journal Reviews

2022 - Now	American Indonesian Exchange Foundation - Fulbright (AMINEF - Indonesia)
2021 - Now	National Science Foundation (NSF - USA)
2021 - Now	National Aeronautics and Space Administration (NASA - USA)
2018 - Now	*Journal of Geoscience Education*, *Integrative and Comparative Biology*, *GSA Bulletin*, *Journal of Visualized Experiments*

Invited Colloquia and Public Talks

2021

- "Surface Alteration: An Astrobiology Perspective." *2nd International Conference on Quaternary Sciences*, Gorgan University, Iran - Online (September)
- "Gamification and Role Playing Simulations for Science Learning." MBG Turkiye Astrobiology Group, Turkey - Online (April)

2020

- "Climate Change: Science and Economics." Universitas Khairun, Ternate, Indonesia - Online (July)
- "Seabed Resources: Opportunities and Impacts." Universitas Khairun, Ternate, Indonesia - Online (July)
- "Effective Storytelling to Drive Student Learning in Science Classes." Universitas Khairun, Ternate, Indonesia (February)
- "Marine Protection Areas in the United States." Universitas Khairun, Ternate, Indonesia (February)

2019

- "Alternative Ed: Rethinking Science Education for the Anthropocene." University of the Virgin Islands, US Virgin Islands (July)

2018

- "Alternative Ed: Rethinking Science Education for the Anthropocene." Oakland University, MI (November)
- "Alternative Ed: Rethinking Science Education for the Anthropocene." Southern Illinois University, Carbondale, IL (November)

- "Using Big Questions, Technology, and Comedy to Drive Student Learning." *Serious Play Conference,* Manassas, VA (July)
- "Alternative Ed: Rethinking Science Education for the 21st Century." Colgate University, Hamilton, NY (February)

Workshops

2021
- "Teaching Real Science in Physical and Digital Classrooms." *Earth Educators' Rendezvous*, Online (July)

2020
- "Professional Development for College Instructors." Ternate, Indonesia (February - March)
- "Plugging in to 21st Century Geoscience Education: Rethinking Science Education for the Anthropocene." Lviv, Ukraine (January)

2018
- "Active Learning and Digital Geoscience Education." *Fall Meeting of the Geological Society of America*, Indianapolis, IN (November)
- "Plugging in to 21st Century Geoscience Education." *VIII GeoSciEd,* Campinas, Brazil (July)

Conferences

2025
- **Horodyskyj, L. B.**, Lennon, T., Greco, R., Viveiro, A., Neto, D. V., Tonso, S. "Jogos de RPG como Método para Ensinar Regência Planetária [Role-Playing Games as a Method of Teaching Planetary Stewardship]" *XII Encontro Pesquisa em Educação Ambiental*, Caiobá, Brazil (April)

2024
- Greco, R., Antonio, A. M. J., **Horodyskyj, L. B.** "An Experience in Critical Environmental Education Through a Project with Stingless Bees in the Ribeira Valley (SP), Brazil." *XII Congreso Latinoamericano de Enseñanza de la Biología y la Educación Ambiental*, Bogata, Colombia (September)

2023
- **Horodyskyj, L. B.**, Greco, R., Lennon, T. "Sustainable States: Usando Jogo de Role-Playing na Educação Ambiental [Sustainable States: Using Role-Playing Games in Environmental Education]." *IX Seminario Internacional de Enseñanza en las Ciencias Naturales*, Neiva, Colombia (November)
- Greco, R., Jama, A. M., Soares, C. J. A., **Horodyskyj, L. B.** "A Abordagem Ecocêntrica para o Ensino das Ciências da Terra [The Ecocentric Approach to Teaching Earth Sciences]." *IX Seminario Internacional de Enseñanza en las Ciencias Naturales*, Neiva, Colombia (August)

2022
- **Horodyskyj, L. B.**, Ilca, B., Parkhurst, W., Gazdac, A., Oribello, J. "Agavi: A Digital-Analog Hybrid Platform for Science Education." *IX GeoSciEd*, Shimane, Japan (August)
- Greco, R., **Horodyskyj, L. B.** "Could Earth Science Education Contribute to a Culture of Peace?" *IX GeoSciEd*, Shimane, Japan (August)
- Lennon, T., **Horodyskyj, L. B.**, Greco, R., Ishak, L., Umasangaji, H., Buniak, I. "Greenworks: A Multi-University Environmental Education Role-Playing and Community Action Experience." *IX GeoSciEd*, Shimane, Japan (August)
- **Horodyskyj, L. B.** "International Diplomacy Games for Environmental Learning." *Serious Play Conferences*, Online (June)

2021
- **Horodyskyj, L. B.** "Using the Limits of COVID Digital Learning to Engage Students in Scientific Thinking." *Earth Educators' Rendezvous*, Online (July)
- **Horodyskyj, L. B.** and Lennon, T. "Global School Partnerships Through Role-Playing Games." *Serious Play Conferences*, Online (June)
- **Horodyskyj, L. B.**, Umasangaji, H., Ishak, L., Greco, R., Lennon, T. "Greenworks: Science, Role-Playing, and Community Transformation." *European Geosciences Union General Assembly*, Online (April)
- **Horodyskyj, L. B.** "Using the Limits of COVID Digital Learning to Engage Students in Scientific Thinking." *Waasamoogikinwaa'amaading Tribal College Conference*, Online (April)

2020

- **Horodyskyj, L. B.** and Mead, C. "An Improved Method for Teaching the Scientific Process." *Astrofisica Centro Americana y del Caribe Annual Meeting*, Online (December).
- **Horodyskyj, L. B.** and Mead, C. "An Improved Method for Teaching the Scientific Process." *Astronomical Society of the Pacific Annual Meeting*, Online (December).
- Lennon, T. and **Horodyskyj, L. B.** "Assessment of Collaborative Skills in a Climate Ambassadors Program." *46th Annual Conference of the Association of Moral Education*, Online (October)
- **Horodyskyj, L. B.**, Umanahu, E., Lennon, T. "Green Ambassadors: Science, Role-Play, and Community Transformation." *Fall Meeting of the Geological Society of America*, Online (October)
- **Horodyskyj, L. B.**, Umasangaji, H. "A World Apart: Implementing Active Learning in an Indonesian Geoscience Classroom Pre- and Post-COVID-19." *Fall Meeting of the Geological Society of America*, Online (October)

2019

- **Horodyskyj, L. B.**, Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Teaching Students the Scientific Process." *Fall Meeting of the Geological Society of America*, Phoenix, AZ (September)
- **Horodyskyj, L. B.**, Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Teaching Students the Scientific Process." *Astrobiology Science Conference*, Seattle, WA (June)
- **Horodyskyj, L. B.**, Mead, C., Oliver, C., Anbar, A. D. "Teaching Real Science: A Novel Approach to Engaging Students in the Scientific Process." *European Geosciences Union General Assembly*, Vienna, Austria (April)

Media Coverage

2021

- *AAAS Blogs* (2021, October 15), "How Making Labs Accessible and Relatable Increases Student Engagement" (https://www.aaas-iuse.org/resource/how-making-labs-accessible-and-relatable-increases-student-engagement/)

2017

- *The Chronicle of Higher Education* (2017, October 22), "Designing an Online Science Course With Video-Game Appeal" (https://www.chronicle.com/article/Ariel-Anbar-Designs-Online/241480)

2015

- *Scientific American* (2015, January 21), "Astrobiologist Aims to Make Science Education More Interactive" (https://blogs.scientificamerican.com/observations/astrobiologist-aims-to-make-science-education-more-interactive/)

2013

- *e-Literate* (2013, March 3), "The OpenClass Vision: An Example" (https://mfeldstein.com/the-openclass-vision-an-example/)